

WASHINGTON DEPARTMENT OF ECOLOGY
ENVIRONMENTAL ASSESSMENT PROGRAM
FRESHWATER MONITORING UNIT
STREAM DISCHARGE TECHNICAL NOTES

STATION ID: 35H050
STATION NAME: Couse Creek at Mouth
WATER YEAR: 2012
AUTHOR: Mitch Wallace

Introduction

Watershed Description

Couse Creek is located in Asotin County in southeastern Washington. The creek cuts through a deep canyon on its way to the Snake River. The plateaus above Couse Creek are farmed for wheat and barley, and the canyon is used for range and feeding livestock.

Gage Location

The Couse Creek gage is located at the Snake River Road Bridge crossing, approximately 12 miles south of Asotin, Washington.

Table 1. Basin Area and Legal Description

Drainage Area (square miles)	24 (Streamstats)
Latitude (degrees, minutes, seconds)	46° 12' 17" N
Longitude (degrees, minutes, seconds)	116° 58' 00" W

Table 2. Discharge Statistics.

Mean Annual Discharge (cfs)	1.4
Median Annual Discharge (cfs)	0.70
Maximum Daily Mean Discharge (cfs)	14
Minimum Daily Mean Discharge (cfs)	0.50
Maximum Instantaneous Discharge (cfs)	15
Minimum Instantaneous Discharge (cfs)	0.40
Discharge Equaled or Exceeded 10 % of Recorded Time (cfs)	1.2
Discharge Equaled or Exceeded 90 % of Recorded Time (cfs)	0.63
Number of Days Discharge is Greater Than Range of Ratings	12
Number of Days Discharge is Less Than Range of Ratings	18
Number of Un-Reported Days	132
Number of Days Qualified as Estimates	53
Number of Modeled Days	0

Note: Statistics displayed in Table 2 may not include values in which the predicted discharge exceeds the range of ratings.

Table 2 Discussion (Discharge Statistics)

The pressure transducer was removed in the middle of November to protect it from freezing temperatures. It was replaced in the middle of March. This was the reason for the high number of missing days.

A large portion of the estimated days were a result of logger drift. Data is qualified as an estimate if the mean daily flow difference between corrected and uncorrected data is greater than 20% and greater than 0.50 cfs.

Table 3. Error Analysis Summary.

Potential Logger Drift Error (% of discharge)	66.5
Potential Weighted Rating Error (% of discharge)	13.8
Total Potential Error (% of discharge)	80.3

Table 3 Discussion (Error Analysis)

The high potential logger drift error is a result of the mean daily flow difference between corrected and uncorrected data being large. This difference was caused by extremely low flows causing very shallow water depths at the location of the pressure transducer.

Table 4. Stage Record Summary

Minimum Recorded Stage (feet)	4.34
Maximum Recorded Stage (feet)	6.11
Range of Recorded Stage (feet)	1.77

Table 4 Discussion (Stage Record)

No stage data was collected from November 15, 2011, to March 13, 2012. The pressure transducer was removed for the winter. The staff gage was damaged by high flows in late March. The staff was repaired and a new datum was established.

Table 5. Rating Table Summary

Rating Table No.	15	16	701
Period of Ratings	10/1/11 to 10/18/11	10/1/11 to 12/7/11	10/18/11 to 1/9/12
Range of Ratings (cfs)	0.26 to 5.9	0.38 to 7.4	0.33 to 33
No. of Defining Measurements	3	4	3
Rating Error (%)	8.9	12.5	9.8

Rating Table No.	161	17	18
Period of Ratings	12/7/11 to 3/26/12	3/26/12 to 6/4/12	6/4/12 to 9/30/12
Range of Ratings (cfs)	0.38 to 7.4	0.70 to 24	0.35 to 24
No. of Defining Measurements	4	3	4
Rating Error (%)	12.5	15.4	18.4

Rating Table No.			
Period of Ratings			
Range of Ratings (cfs)			
No. of Defining Measurements			
Rating Error (%)			

Table 5 Discussion (Rating Tables)

Ratings 16 and 701 were a result of leaf litter build-up. An increase in flow led to rating 161 in which a portion of the accumulated leaf litter was flushed out.

A significant rain on snow event led to the shift to rating 17. The staff gage was damaged during this event. The staff gage was repaired, but it couldn't be set to the same datum. Rating 18 reflects the new datum.

Nine discharge measurements were taken throughout the water year, ranging from 0.69 to 12 cfs.

Table 6. Model Summary

Model Type (Slope conveyance, other, none)	n/a
Range of Modeled Stage (feet)	n/a
Range of Modeled Discharge (cfs)	n/a
Valid Period for Model	n/a
Model Confidence	n/a

Table 6 Discussion (Modeled Data)

A high flow model was not developed for this station. There were not enough discharge measurements available under channel control to accurately develop a model.

Table 7. Survey Type and Date (station, cross section, longitudinal)

Type	Date
Station, X-Section, Long.	10/18/2011

Table 7 Discussion (Surveys)

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Activities Completed

Repaired damaged staff gage. Established new datum.
 Removed the pressure transducer in November 2011 and re-installed it in March 2012.